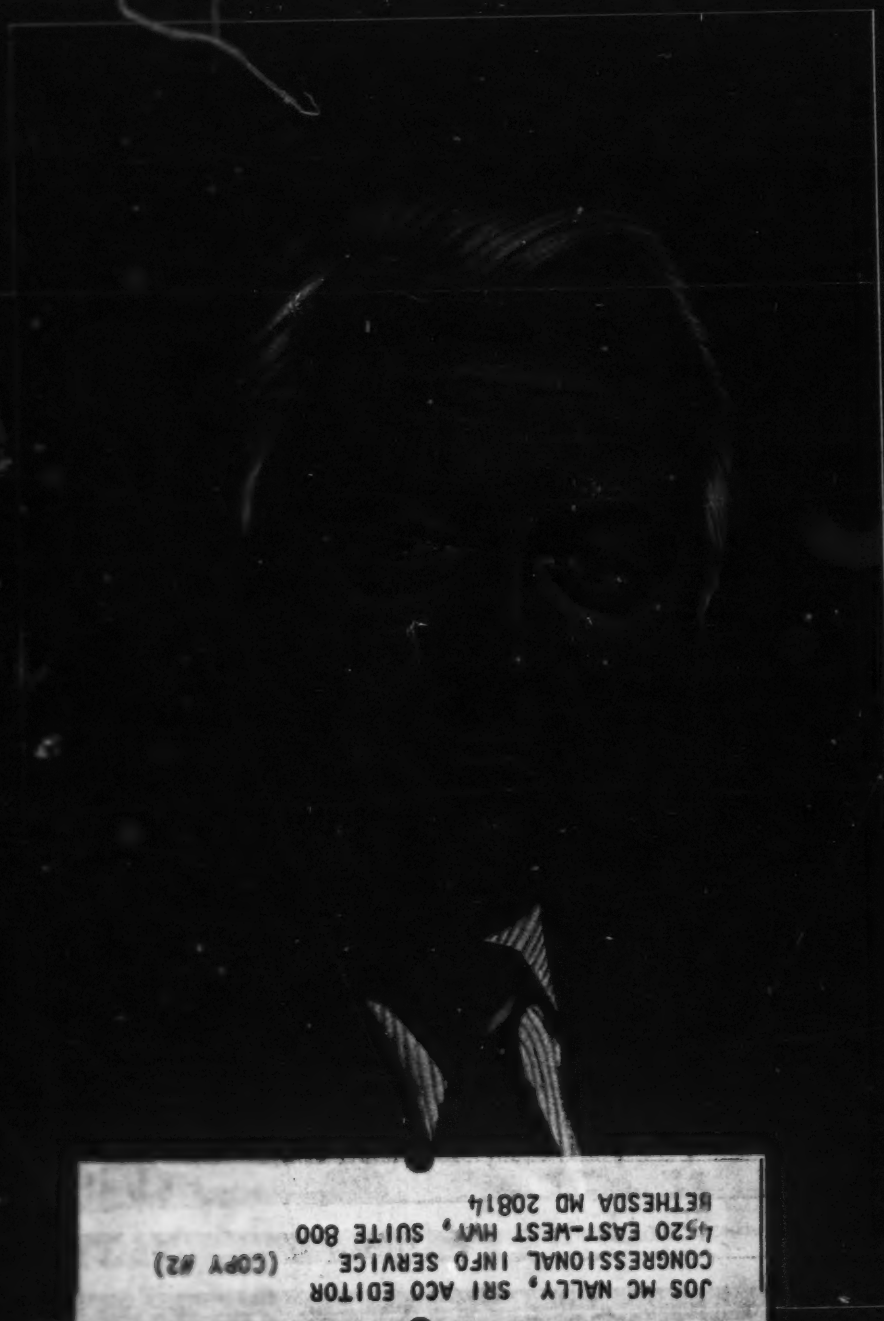
CHILTON'S C2150-3 2/1985

AUTOMOTIVE INDUSTRIES

NUMBER ONE IN THE INDUSTRY SINCE 1895



Philip Caldwell

How Canada's Super Supplier Does It

Experimental Design Hits Detroit

JOS MC NALLY, SRI ACO EDITOR
CONGRESSIONAL INFO SERVICE (COPY #2)
4520 EAST-WEST HWY, SUITE 800
BETHESDA MD 20814

AUTOMOTIVE INDUSTRIES

February, 1985/Volume 165, Number 2

FEATURES

40 MAN OF THE YEAR
Automotive Industries salutes outgoing Ford chairman Philip Caldwell as our 1985 Man of the Year and Career Achievement Award winner.

48 EXPERIMENTAL DESIGN HITS DETROIT
A primer on the Taguchi Method of experimental design.

55 HOW CANADA'S SUPER SUPPLIER DOES IT
A profile of up and coming OEM supplier Magna International Inc.

59 FORD'S 1985½ ESCORT/LYNX: AEROFACED AND HOTFOOTED
Ford's true-blue econotwins get an aero look and a larger engine in mid-1985.

65 BEHIND THE GM/EDS DEAL
A look at GM's buy-in at EDS

68 AUTOMOTIVE MULTIPLEXING/FIBER OPTICS—WIRED TO EXPLODE?
Big things are afoot in the race to simplify automotive wiring.

70 2000 TSE—AN ESPACE ODYSSEY
An intrepid *AI* editor puts the Renault Espace minivan through its paces.

73 DIESEL CLATTERBOXES TAKE EUROPE
The diesel may be underdog in the US, but it's crowding the highways of Europe.

76 SON OF MUSTANG SVO: SVOOM!
Improvements made to the 1985 Ford Mustang SVO make it a second generation GT.

81 INTERVIEW: MANUFACTURING TURNS RESPECTABLE
John Deere's Gordon Millar notes the changing view of manufacturing.

83 COSWORTH CRANKS OUT QUALITY CASTINGS AUTOMATICALLY
Cosworth unwraps a computerized foundry to supply light alloy castings.

89 SPLASH!
The latest on heavy-truck spray suppressant systems.

91 SHOULDERING PART OF THE OEM'S BURDEN
Profile of how British supplier GKN is helping automakers in some unusual ways.

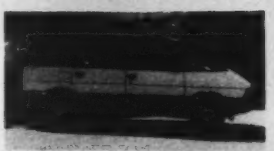
94 AUDI DEEP ROLLS CRANKSHAFTS FOR STRENGTH
Audi uses a process for strengthening steel and cast iron crankshafts.

62 TRUCK & OFF-HIGHWAY INDUSTRIES*

*Does not appear in all issues.

Man of the Year—p. 40

Experimental Design—p. 48


Renault Espace—p. 70

Magna—p. 55

News—p. 21

NEWS & DEPARTMENTS

5 Editorial: Doublespeak Award Eludes Auto Industry
7 Letters: Ground Warfare And Pacers
8 Detroit: Iacocca At Large
13 Newsline: Nissan's Mediums
17 Marketdata: Speak, Wallet
21 News: GM's Saturn Project
99 Business: Long Term Loans
101 AIAG: Star Wars Transport
103 Technolog: Tapered Roller Bearings
109 New Products
117 Technical Literature

COVER

We salute Philip Caldwell, *Automotive Industries'* 1985 Man of the Year and Career Achievement Award winner.

NEXT MONTH

March brings the low-down on Ford's Taurus project, plus the Japanese invasion of America.

QUOTABLE

"The market is so lucrative in North America that every maker is going to be here. They just love the American consumer because we buy and buy and American consumers aren't worried about where it came from."—Robert Stempel, GM VP and head of the BOC (Buick-Oldsmobile-Cadillac) Group.

AUTOMOTIVE INDUSTRIES (ISSN 0273-656x) magazine is published monthly by Chilton Co., Chilton Way, Radnor, PA 19089. Chilton Company is a division of American Broadcasting Companies Inc., New York, NY. Subscription rates and single copy prices on request. Second Class Postage paid at Wayne, PA 19087 and additional mailing offices. POSTMASTER: Send address changes to AUTOMOTIVE INDUSTRIES, P.O. Box 1441, Riverton, NJ 08077. Chilton Company, 1985. Permission to photocopy for internal use or the internal use of specific clients is granted by Chilton Company for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $1.00 per copy of the article, plus 25¢ per page is paid directly to the CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to The Editor. (0273-656x/85 $1.00 + 25¢)

ONE OF THE ABC PUBLISHING COMPANIES

Light Partnership

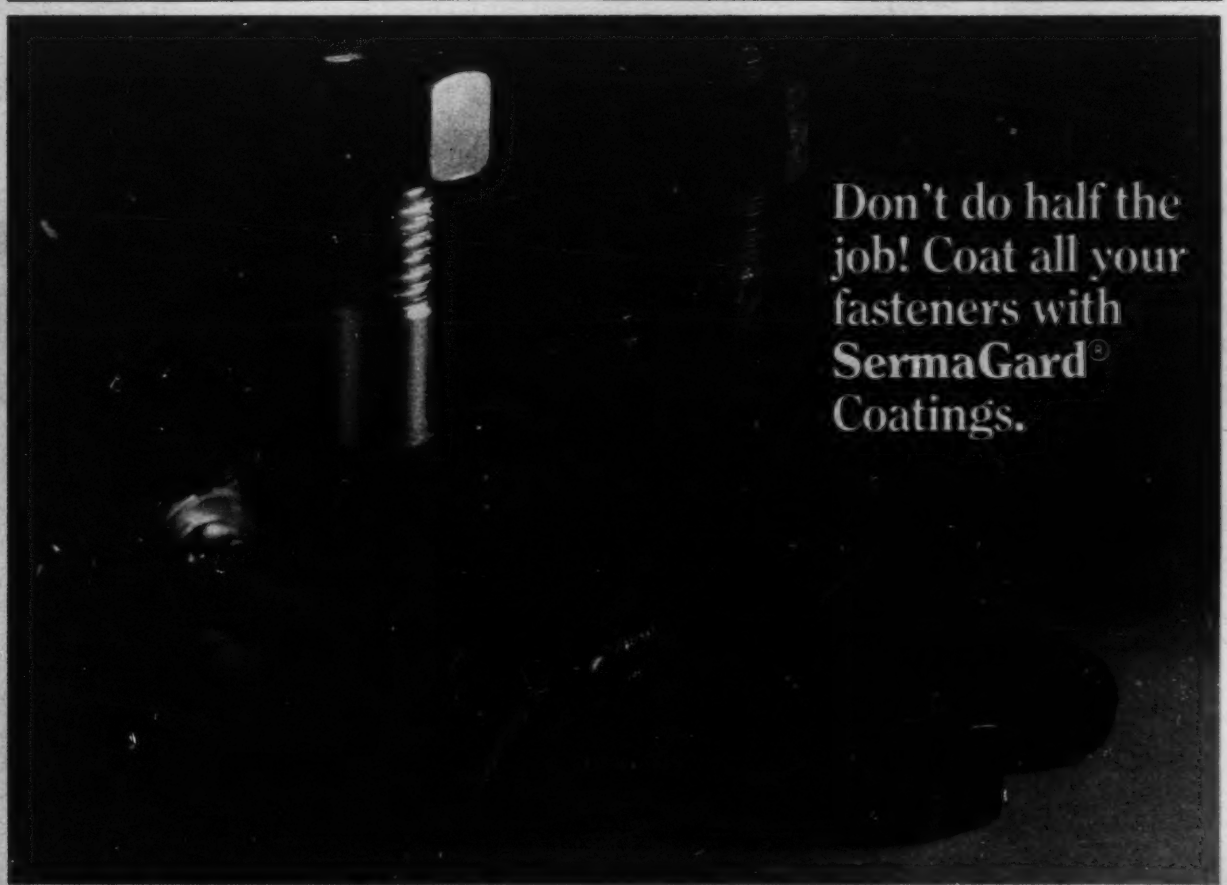
General Motors' Fisher Guide and Lucas Industries Inc. are now partners in an agreement giving Fisher license to use Lucas's patented headlamp reflector material. The dough molding compound, which due to changes in vehicle lighting regulations can now be used in the US, provides higher optical accuracy than conventional reflectors and is lighter in weight. Lucas Electrical will also design and develop a headlight in conjunction with Fisher Guide for one of GM's large volume vehicles.

Tennessee Sentras

Next month, less than two years after its first US-built pickup trucks began rolling down their Smyrna, TN assembly line, Nissan's US manufacturing arm will begin production of Sentra econocars. According to Marvin T. Runyon, Nissan Motor Manufacturing Corp. USA president, Nissan is looking to build 100,000 Sentras and 140,000 trucks at Smyrna by 1988. Runyon said that a second shift will be added in June, increasing the facility's 2100-member workforce to 3000. Nissan has shelled out $85 million for Smyrna's Sentra tooling and equipment; pre-production testing and quality checks are going on as you read this. Note that the entry-level Sentra, which lists for $5499 in just its birthday clothes, is the type of car US automakers claim they can't build here. Insiders say a designed-for-America Sentra may be in the works.

Correction

All eagle-eyed *AI* readers who noticed an omission in January's 'Who Builds Cars Best' feature survey can pat themselves on the back. In the chart titled 'Which Auto Company Builds The Best Cars For Ease Of Manufacturing?' (p. 37) second place Toyota apparently came under our Art Department's proverbial X-Acto knife. The top five placers in the above category's chart should have been: GM, 22.9%; Toyota, 14.6%; Honda, 12.3%; Ford, 7.2%; VW, 7.2%. We regret the error.



"We've learned an awful lot from that already, we've got things in there that have already been reflected in our current operations, and we need a lot more."

The car itself won't be GM's lowest-priced car, Smith said. That will probably continue to be the imported-from-Japan Chevrolet Sprint.

The Saturn will be small, about 2000-lb (*950-kg*) and feature a new engine and two new transaxles. The car GM showed in January when it announced the new corporation had a 1.9-L four-cylinder engine. *AI* has learned a three-cylinder engine might be slated for Saturn use.

GM vice chairman Howard Kehrl claims the manual transaxle for the Saturn will shift "better than anything we've ever had" and deliver lowest parasitic drag of any transmission GM has ever tested.

Kehrl also asserts that the Saturn's powerplant gets the best brake specific fuel consumption of any engine GM has ever tested, its own or its competition's. He said GM is looking for 45 mpg city and 60 mpg highway from the Saturn. (*5.2/3.9 L/100 km*)

The cars will be sold in two- and four-door versions initially, perhaps as soon as late 1987. ■

UAW Study Sees $2600 Japanese Advantage

by John McElroy

Over the last five years, the UAW has scoffed at studies that show the Japanese automakers have a $1500 landed cost advantage. And with good reason. A good portion of the Japanese advantage cited in those studies lies with lower wages and many fewer employees.

When UAW president Owen Bieber was speaking at the US-Japan Auto Industry Conference at the University of Michigan one year ago, he lambasted these studies.

"I'm referring of course to the famous $1500 landed cost advantage supposedly enjoyed by Japanese small cars," Bieber said. "We in the UAW were skeptical about the figure and the reasons for it—from the start."

So the union went out and sponsored a study of its own.

And sure enough, it found out the landed cost difference wasn't $1500. It was $2600. So the union decided not to make the study public. Nonetheless, *AI* was able to obtain key information.

The UAW study, called the Telesis Study, looks at the Japanese advantage from a number of categories. And one of the main advantages it

(Continued)

Japanese Advantages Per Car

Manufacturing Efficiency	$800
Assembly Efficiency	$400
Wage Differences	$625
Currency Differences	$750
Taxes	$575
Total Cost Advantage	$3150
Less Shipping Cost	-$ 550
Landed Shipping Cost	$2600

Source: UAW Telesis Study

Super Slo-Mo Video

Lets automotive specialists "See what they've never seen before"

Sometimes ... *you just have to slow down to get the right perspective on a problem.*

And if your problem is something that happens too fast for the eye to see, let the NAC HSV-200 High Speed Video System slow things down and take a look at it for you.

Automobile Manufacturers and Component Manufacturers use the HSV-200 to solve a lot of problems in high speed production and design —problems that couldn't be seen before — until slowed down with the HSV-200 High Speed Video.

This versatile tool "sees" things in 20 microsecond blinks. Records 200 pictures a second. In full color ... Then the HSV-200 will show it back to you any way you want to look at it ... *slow motion, stop frame, or even reverse to look back or see again.*

They call it "The Problem Solver" ... NAC HSV-200 High Speed Slow Motion Video.

exclusive distributors

INSTRUMENTATION MARKETING CORP.

820 South Mariposa Street, Burbank, CA 91506
Phone 213/849-6251, Telex 67-3205

Input #114 on Reader Action Card

Owen Bieber laughed at the $1500 Japanese cost-per-car advantage—then the UAW's own study upped that figure to $2600!

says the Japanese enjoy is a $625-per-car cost difference due to lower wages. So the union has quietly stopped knocking the other studies—but it isn't keen to talk about what the Telesis Study turned up.

"We've not yet decided how much we want to make public," says one of the union's international economists. ■

Santana Heralds China's New Auto Beginnings

by Thomas A. Behne

The recent agreement between the Chinese government and Volkswagen to manufacture 30,000 Santana (US Quantum) models a year in Shanghai is a signal China is aggressively seeking the technology needed for it to start a domestic auto industry that can also compete in the world market.

Under the deal, the Shanghai Volkswagen Automotive Co. Ltd. has been set up, with VW holding a 50% share. Other partners include the Shanghai Tractor and Automobile Corp.; Shanghai Trust and Consultancy, a subsidiary of the Bank of China; and the China National Automobile Industry Corp.

The plan has been under negotiation for several years and has recently been expanded slightly from 20,000 cars/year. The original intention was to confine the cars to government offices and taxi use. Now, the extra 10,000 will be made available for sale to private individuals. Full production is due to be reached in 1989.

The engine plant to supply this facility will be built between 1986 and 1989 and have a total annual capacity of 100,000 four-cylinder gasoline and diesel units. The surplus output (over and above the Chinese requirements) will be exported to Volkswagenwerke AG in Germany.

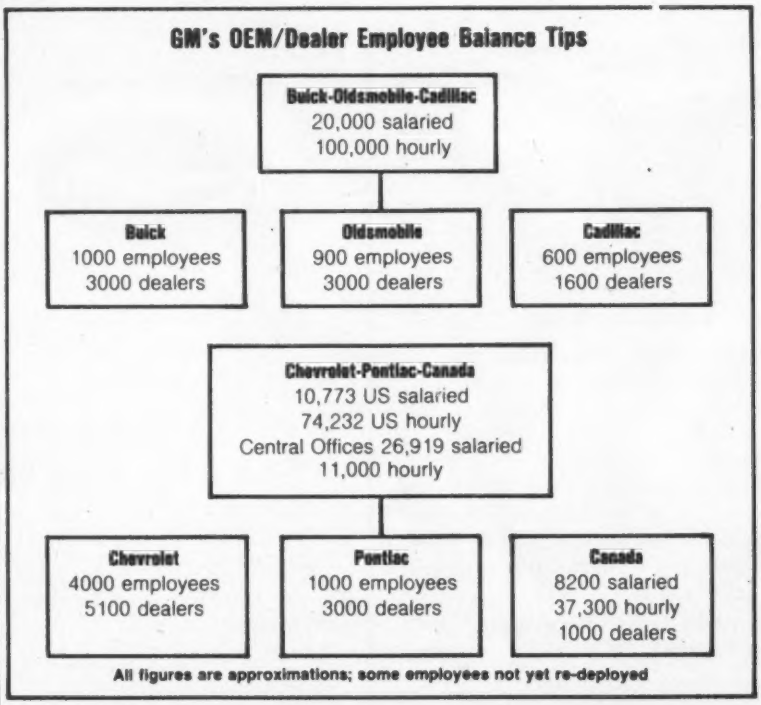
Currently, the plant is making 6000 Mercedes 170-based models a year with a staff of about 4000—less than two cars per worker per year. Known as the Shanghai, this car dates from the early '50s and will be gradually phased out as the new model comes in.

Old and new: the Mercedes 170-based Shanghai and its replacement, the VW Santana (Quantum in the US).

According to Paul Josef Weber, VW's director responsible for the group's subsidiary companies, the new Santana project will be far less complex than the Shanghai operation. While almost 100% of the Shanghai was of Chinese origin, domestic content of the Santana will, for

(Continued)

General Motors



When GM chopped-and-channeled its car divisions into the present corporate flow-chart, the stated reorganization goal was efficiency through consolidation—'to make two mini-General Motors,' according to Chevrolet-Pontiac-Canada head Lloyd Reuss. By blending the five once-powerful car divisions, speedier decision-making would result—or so went the theory.

But a strange thing happened in the wake of all this division-shuffling. Now there are more dealers than car division employees—or so it seems. Who would have imagined the day when Chevrolet would end up with 8/10ths of an employee per dealer? Or when Oldsmobile and Buick would have a third of an employee for every store? Here are GM's new approximate numbers.